National Institute of Environmental Health Sciences

The 2007 San Diego wildfire impact on the emergency department of the University of California, San Diego Hospital System

Author(s): Schranz CI, Castillo EM, Vilke GM
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Abstract:

INTRODUCTION: In October 2007, San Diego County experienced a severe firestorm resulting in the burning of more than 368,000 acres, the destruction of more than 1,700 homes, and the evacuation of more than 500,000 people. HYPOTHESIS: The goal of this study was to assess the impact of the 2007 San Diego Wildfires, and the acute change in air quality that followed, on the patient volume and types of complaints in the emergency department. METHODS: A retrospective review was performed of a database of all patients presenting to the Emergency Departments of University of California, San Diego (UCSD) hospitals for a six-day period both before (14-19 October 2007) and after (21-26 October 2007) the start of the 2007 firestorm. Charts were abstracted for data, including demographics, chief complaints, past medical history, fire-related injuries and disposition status. As a measure of pollution, levels of 2.5 micron Particulate Matter (PM 2.5) also were calculated from data provided by the San Diego Air Pollution Control District. RESULTS: Emergency department volume decreased by 5.8% for the period following the fire. A rapid rise in PM2.5 levels coincided with the onset of the fires. The admission rate was higher in the period following the fires (19.8% vs. 15.2%) from the baseline period. Additionally, the Left Without Being Seen (LWBS) rate doubled to 4.6% from 2.3%. There was a statistically significant increase in patients presenting with a chief complaint of shortness of breath (6.5% vs. 4.2% p Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.028) and smoke exposure (1.1% vs. 0% p Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.001) following the fires. Patients with significant cardiac or pulmonary histories were no more likely to present to the emergency department during the fires. CONCLUSIONS: Despite the decreased volume, the admission and LWBS rate did increase following the onset of the firestorm. The cause of this increase is unclear. Despite a sudden decline in air quality, patients with significant cardiac and pulmonary morbidity did not vary their emergency department utilization rate. Based on the experience at UCSD, it appears that significant wildfires like that seen in 2007, only may marginally affect emergency department operations, and may not require significant changes to normal staffing levels.

Source: Ask your librarian to help locate this item.

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Extreme Weather Event

Air Pollution: Particulate Matter

Extreme Weather Event: Wildfires

Geographic Feature: ☑

resource focuses on specific type of geography

Mountain, Ocean/Coastal, Valley

Geographic Location: ☑

resource focuses on specific location

United States

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Injury, Mental Health/Stress, Respiratory Effect

Mental Health Effect/Stress: Other Mental Disorder

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified